

Work Order ID 79392

79392

Page 1

May-30-12 8:03:24 AM

Item ID: D350-748-241TRN

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Turning Detail

Start Date: 1/25/12 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 1/27/12 Req'd Qty: 1.00 *1*

Customer:

Reference:

Run Start *NR1*

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D350-748-241	F
--------------	---

100

0.00

100

MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs on both ends as per Folio FA647

2-Turn first side as per Folio FA647

3- File transition lines smooth.

FOLIO REV: _____

DWG REV: F

12-01-30

mmml

110

QC1- Inspect dimensions to dimension sheet

0.00

110

QC

Memo

0.00

Quality Control

12-01-30

mmml

Work Order ID 79392

79392

Page 2

May-30-12 8:03:24 AM

Item ID: D350-748-241TRN

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Crosstube Turning Detail

Start Date: 1/25/12 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 1/27/12 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Run Start ***NR1***

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop ***NR2***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

120

120

Mori Seiki

Mori Seiki CNC Lathe Large

MORI SEIKI CNC LATHE LARGE

Memo

1-Turn second side as per Folio FA647
2- File transition lines smooth.
3-Scribe part # as per Dwg D350-748-241
FOLIO REV: _____
DWG REV: _____

0.00

0.00

12-01-30
mm.L

130

130

QC

Quality Control

QC1- Inspect dimensions to dimension sheet

Memo

0.00

0.00

12-01-30

mm.L

140

140

QC

Quality Control

QC8- Inspect parts - second check



Memo

0.00

0.00



12-2-9

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
12.3.28	151	DRILL Ø0.188 TAPPING HOLE THRU CUFF, Qty(1) PER CUFF. DRILL 2" FROM END OF CUFF. HOLE IN BOTH CUFFS MUST BE PARALLEL TO EACH OTHER				 12.3.28 P. 1042	 12/6/28	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

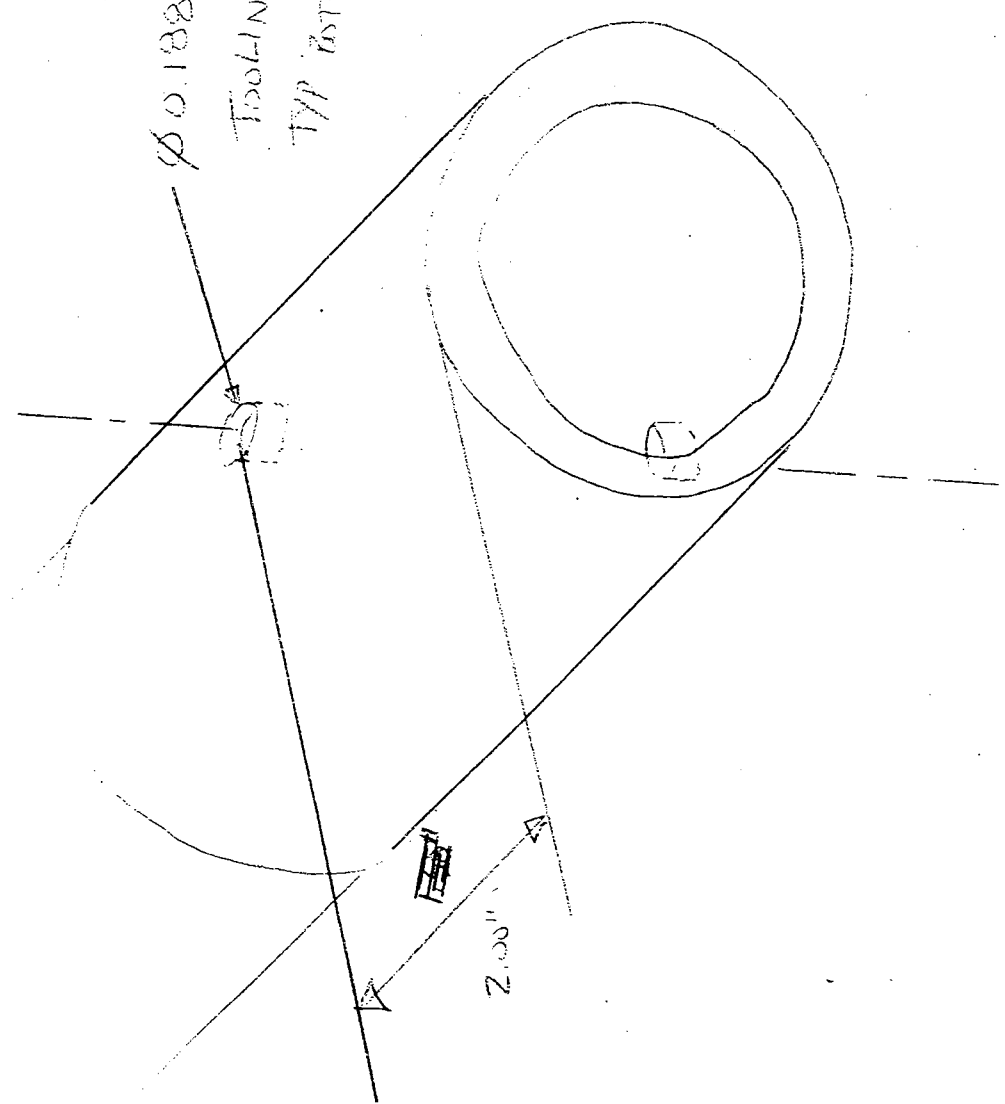
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

12.03.54

Ø 0.188 THRU
TOOLING HOLE
TYP. 25TH CORNERS



Work Order ID 79392

79392

Page 4

May-30-12 8:03:24 AM

Item ID: D350-748-241TRN Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Crosstube Turning Detail
 Start Date: 1/25/12 Start Qty: 1.00 ***1*** Cust Item ID:
 Required Date: 1/27/12 Req'd Qty: 1.00 ***1*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180	QC6- Inspect dimensions to drawing	0.00							
180									
QC	Memo	0.00							12-5-7
Quality Control									
190		0.00							
190	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and stock in kanban rack								
	Location: <u>46</u>								
200	QC21- Final Inspection - Work Order Release	0.00							
200									
QC	Memo	0.00							
Quality Control									

12/5/12

DP 12-5-7

ML 12/06/12

ML 12/06/25

Picklist Print

May-30-12 8:03:24 AM

Page 1

Work Order ID: 79392

Parent Item: D350-748-241TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 1/25/12

Required Date: 1/27/12

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 08-03-06 DD verified by:ec
 IPP Rev B Removed polish 08.04.02 EC verified by : DD
 IPP Rev C Removed LPS-3 08.06.23 Ec verified by: DD IPP Rev D 11.02.24 as per dwg
 rev.F DD verf: JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6015-125 Crosstube Material		Manufactured	No			120	Each	38.0000	1	1			

Location

Loc Qty

Loc Code

HALL

38

61380

4

72511

34

①

12-01-26
GAML

DART AEROSPACE LTD		Work Order:	79392
Description: Crosstube Assembly (AS350/355 High Aft)		Part Number:	D350-748-241
Inspection Dwg: D350-748-241 Rev: PF 4/20/25		Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST



First Article



Prototype

Inspection Sheet	Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.243	✓		vern	CWC-08
	2.180	+0.005/-0.000	2.183	✓			
	2.180	+0.005/-0.000	2.182	✓			
	2.208	+0.005/-0.000	2.210	✓			
	2.234	+0.005/-0.000	2.236	✓			
	2.253	+0.005/-0.000	2.255	✓			
	2.272	+0.005/-0.000	2.275	✓			
	2.299	+0.005/-0.000	2.301	✓			
	0.063	+/-0.010	.063	✓		vern	CWC-08
	4.26	+/-0.030	4.26	✓		"	
	R0.063	+/-0.010	.063	✓		AG	
	R0.50	+/-0.030	.500	✓		"	
SIDE B	2.240	+0.005/-0.000	2.245	✓		vern	CWC-08
	2.180	+0.005/-0.000	2.184	✓			
	2.180	+0.005/-0.000	2.182	✓			
	2.208	+0.005/-0.000	2.211	✓			
	2.234	+0.005/-0.000	2.236	✓			
	2.253	+0.005/-0.000	2.255	✓			
	2.272	+0.005/-0.000	2.275	✓			
	2.299	+0.005/-0.000	2.301	✓			
	0.063	+/-0.010	.063	✓		vern	CWC-08
	4.26	+/-0.030	4.26	✓		"	
	R0.063	+/-0.010	.063	✓		AG	
	R0.50	+/-0.030	.500	✓		"	
	122.70	+/-0.060	122.700	✓		tape	mm-L-02

Measured by:	mm-L
Date:	12/01/20

Audited by:	DP
Date:	12-2-9

Prototype Approval:	N/A
Date:	N/A

Rev	Date	Change	Revised by	Approved
A	07.01.17	New Issue (P/O D350-748-201)	KJ/JLM	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

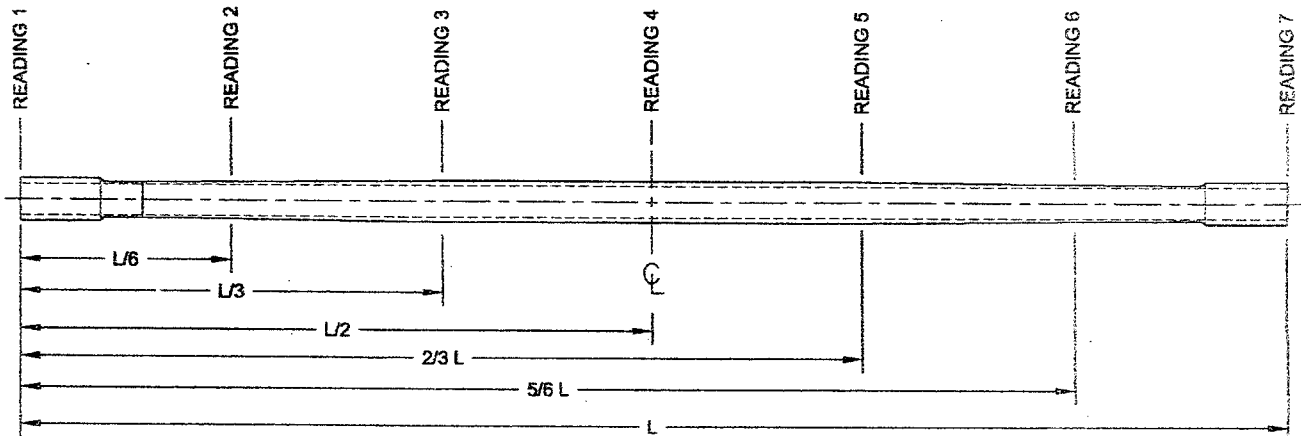
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 79392
Description:		Part Number: 1350-748-211
Inspection Dwg:		Page 1 of 1

WALL THICKNESS MEASUREMENT



	WALL THICKNESS MEASUREMENT (IN)				DEVIATION (max-min)	TOLERANCE
	Q1	Q2	Q3	Q4		
READING 1 L= 0"						0.030"
A READING 2 L= 20	.122	.124	.132	.122		
READING 3 L= 41	.158	.164	.160	.154		
READING 4 L=						
B READING 5 L= 20	.125	.118	.127	.129		
READING 6 L= 41	.159	.161	.159	.155		
READING 7 L=						

Item	Qty -241	Part Number	Description
1	X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
2	1	D6015-125	CROSSTUBE (OR D6018-125)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6018-125
FINISHED LENGTH = 122.700±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-241", AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 29.85 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT ALL EDGES FROM MACHINING
LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER
BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO
BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO
VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE,
CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES,
NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY.
CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE
MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO
CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT
NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN
CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

79392 M.C.J
12/01/25

RELEASED
R 2011-01-08

F	ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)	CP	10.11.23
E	REVISE GENERAL NOTES; UPDATE TO CURRENT STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A8-3); ADD TOLERANCES (ZN C6-3, D2-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6018-125 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR			
DATE	10.11.23		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

DRAWING NO.
D350-748-241
REV. F
SHEET 1 OF 4
TITLE
CROSSTUBE (AS 350/355 HI AFT)
SCALE
NTS

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

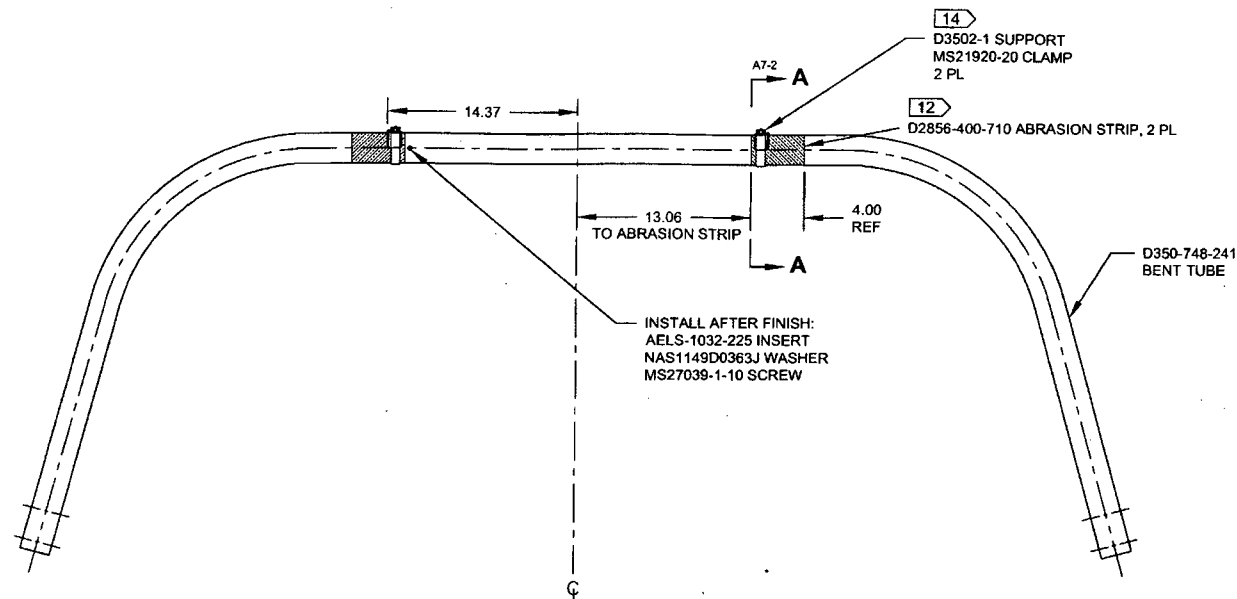
Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

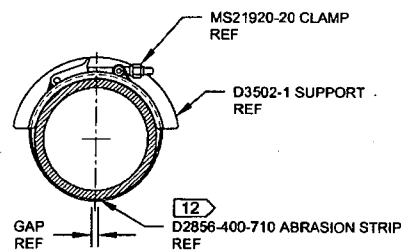
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

7392



**D350-748-241
ASSEMBLY DETAIL**



SECTION A-A D4-2
SCALE 4X

RELEASED
2011-05-19

DESIGN		DART AEROSPACE LTD	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D350-748-241	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI AFT)	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2



B



RELEASE
2011-01-18

DESIGN	<i>90</i>	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D350-748-241 TITLE CROSSTUBE (AS 350/355 HI AFT) REV. <i>1</i> SHEET 3 OF 3 SCALE NT COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PROPERTY OF DART AEROSPACE LTD. THE REPRODUCTION OF THIS DOCUMENT FOR ANY PURPOSE OR COPIES OR COMMUNICATION TO ANY OTHER PERSON WITHOUT THE WRITTEN PERMISSION FROM DART AEROSPACE LTD.
DRAWN	<i>90</i>	
CHECKED	<i>h</i>	
MFG. APPR.	<i>h</i>	
APPROVED	<i>h</i>	
DE APPR.	<i>h</i>	
DATE	10.11.23	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

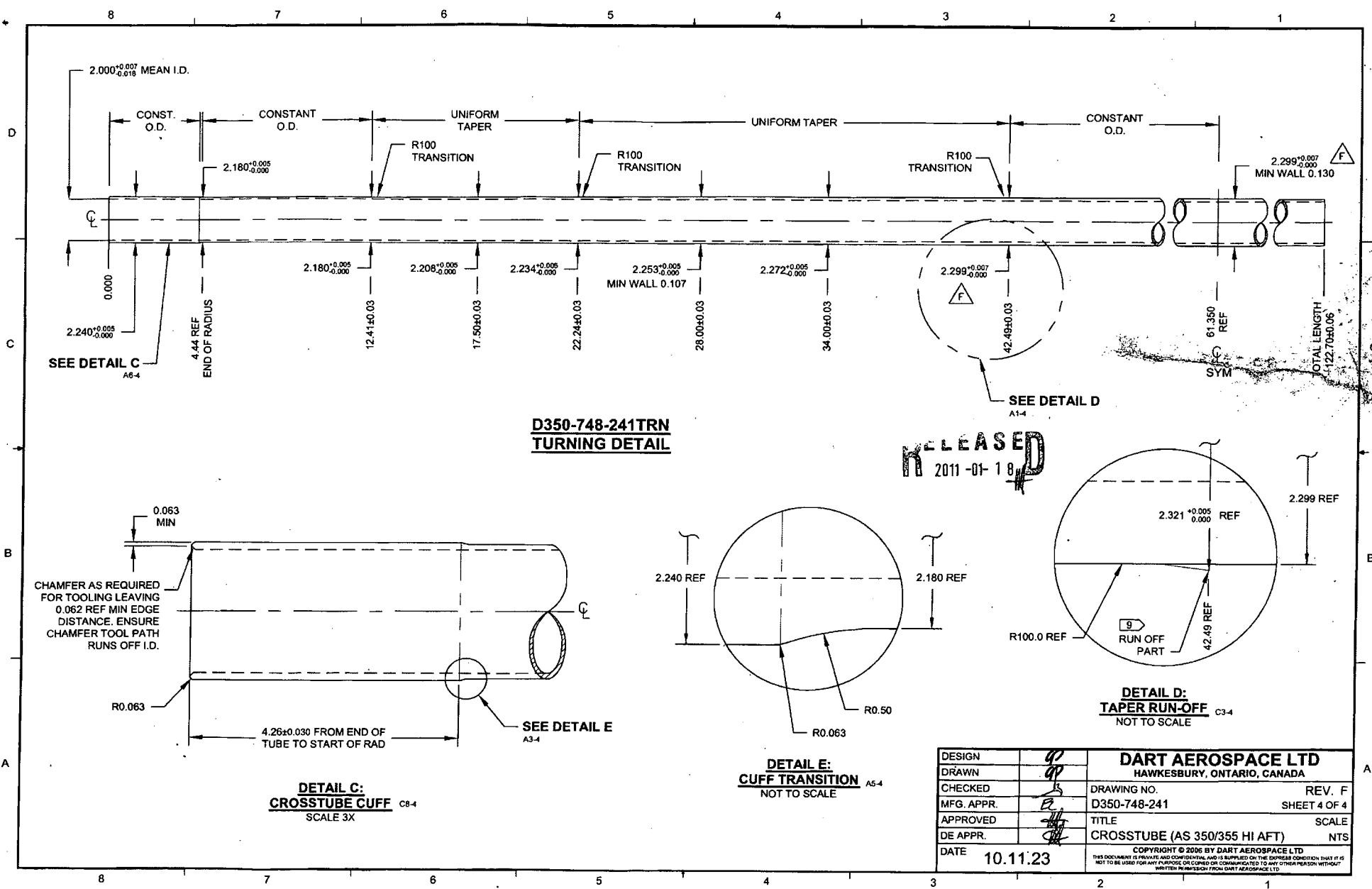
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

79392



DESIGN	90	DART AEROSPACE LTD	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED	90	DRAWING NO.	REV. F
MFG. APPR.	90	D350-748-241	SHEET 4 OF 4
APPROVED	90	TITLE	SCALE
DE APPR.	90	CROSSTUBE (AS 350/355 HI AFT)	NTS
DATE	10.11.23	<small>COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Packing Li
Sales Order

Sales Order D

Apr 3, 2012

Pa

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Customer ID	PO Number	Payment Terms
DARA	PQ16600	Net 30 Days
	Ship Via	Process
	YRC	

Quantity	Item	Description	Total Shipped	This Shipme
1.00	✓	1 PC. 74672 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		
1.00	✓	1 PC. 74673 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		
1.00	✓	1 PC. 74676 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		
1.00	✓	1 PC. 74678 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		

COMMENTS

SHIPPED BY SIGNATURE
METLAB

5/1/12
DATE

RECEIVED BY SIGNATURE
DART AEROSPACE

DATE

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Packing L

Sales Order # 71

Sales Order #

Apr 3, 2

F

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Customer ID	PO Number	Payment Terms
DARA	PO16600	Net 30 Days
	Ship Via	Process
	YRC	

Quantity	Item	Description	Total Shipped	This Shipm
1.00	✓	D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 74712		
1.00	✓	D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 74718		
1.00	✓	D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 79010		
		D-350-748-141TRN CROSSTUBE		

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

5/1/12
DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Packing L.
Sales Order Num. 71

Sales Order C

Apr 3, 2

P

Voice: 215-233-2600

Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Customer ID	PO Number	Payment Terms
DARA	PO16600	Net 30 Days
	Ship Via	Process
	YRC	

Quantity	Item	Description	Total Shipped	This Shipme
1.00	✓	HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 79011 D-350-748-141TRN CROSSTUBE		
1.00	✓	HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 79013 D-350-748-141TRN CROSSTUBE		
1.00	✓	HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 1 PC. 73372 D-350-748-141TRN CROSSTUBE		
		HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

5/1/12
DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

METLAB
1000 E. MERMAID LANE
WYNDMOOR, PA 19038

Packing L

Sales Order # 71

Sales Order #

Apr 3, 2

F

Voice: 215-233-2600
Fax: 215-233-5653

Sold To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Ship To:
DART AEROSPACE
1270 ABERDEEN STREET
HAWKESBURY, ON K6A 1K7

Customer ID	PO Number	Payment Terms
DARA	PO16600	Net 30 Days
Ship Via	Process	
YRC		

Quantity	Item	Description	Total Shipped	This Shipment
1.00	✓	1 PC. 73375 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		
1.00	✓	1 PC. 79391 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		
1.00	✓	1 PC. 79392 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		
1.00	✓	1 PC. 79393 D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC)		

COMMENTS

SHIPPED BY, SIGNATURE
METLAB

DATE

RECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

Packing L

Sales Order Nur

71

Sales Order I

Apr 3, 2

F

METLAB**1000 E. MERMAID LANE****WYNDMOOR, PA 19038**

Voice: 215-233-2600

Fax: 215-233-5653

Sold To:

DART AEROSPACE

1270 ABERDEEN STREET

HAWKESBURY, ON K6A 1K7

Ship To:

DART AEROSPACE

1270 ABERDEEN STREET

HAWKESBURY, ON K6A 1K7

Customer ID	PO Number	Payment Terms
DARA	PO16600	Net 30 Days
Ship Via	Process	
YRC		

Quantity	Item	Description	Total Shipped	This Shipm
		D-350-748-141TRN CROSSTUBE HEAT TREAT TO MIN 180 KSI (MIL-T-6736OR AMS 2759-IC) 560 POUNDS TOTAL		

COMMENTS

SHIPPED BY, SIGNATURE
METLAB5/1/12
DATERECEIVED BY, SIGNATURE
DART AEROSPACE

DATE

Certification

SOLD TO

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7

May 1, 2012

Metlab Shop Order No:	71785
Purchase Order:	16600
Description:	Crosstube
Part No.:	D350-748-141TRN
Quantity:	14 Pieces
Weight:	560 Pounds
Material:	4130 Alloy Steel
Specifications:	Heat Treat to Minimum 180 KSI (MIL-T-6736OR AMS 2759-IC)

This is to certify that the above parts were processed as indicated above and conform to the specification requirements.

Results:

HRC 40 (182 KSI Tensile Strength)

METLAB
Quality Representative Mark Podob

MERCURY CONTAMINATION: During the heat treating process, testing and inspections, the product did not come in direct contact with mercury or any of its compounds nor with any mercury containing device.



Heat Treating and Metallurgical Consulting

D350 X-TUBE CUFF MEASUREMENTS

TYPE	BATCH #	SIDE A	SIDE B
		TWO READINGS	TWO READINGS
AFT	B79393	2.221"/2.251"	2.227"/2.252"
AFT	B79391	2.251"/2.241"	2.236"/2.252"
AFT	B79392	2.238"/2.248"	2.220"/2.262"
AFT	B73372	2.243"/2.247"	2.223"/2.263"
AFT	B73375	2.245"/2.250"	2.236"/2.266"
FWD	B79010	2.230"/2.252"	2.235"/2.245"
FWD	B79011	2.200"/2.280"	2.248"/2.249"
FWD	B74718	2.208"/2.289"	2.242"/2.252"
FWD	B74673	2.189"/2.298"	2.247"/2.238"
FWD	B74678	2.240"/2.258"	2.262"/2.236"
FWD	B74672	2.253"/2.266"	2.260"/2.253"
FWD	B74712	2.264"/2.251"	2.255"/2.258"
FWD	B74676	2.229"/2.263"	2.239"/2.254"
FWD	B79013	2.249"/2.2236"	2.243"/2.245"

Notes: tubes are NOT sandblasted and are still a little crooked

8/17/05/07